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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/374,580 08/16/99 FURUKAWA

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005514 MMC2/0830
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NEW YORK NY 10112

EXAMINER

NOLAN JR, C

ART UNIT	PAPER NUMBER
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2854

DATE MAILED: 08/30/00

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/374,580

Applicant(s)

Furukawa et al

Examiner

N lan

Group Art Unit

2854

☒ Responsive to communication(s) filed on Aug 16, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-45 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-45 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s) _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figure 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

4. Claims 1,10 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by either one of Silverbrook (5,781,205) or Inose et al (5,969,730).

With respect to Claims 1 and 10, '205 teaches the printhead 50, the sensor 300, the A/D converter 311 on the front page diagram and the common sensor/converter substrate(circuit

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board) in figure 4, the driving circuits and electrothermal transducers(heaters/resistors) in figure 6, elements 57-58. '730 teaches the electrothermal transducer 501 in figure 5, the driving circuit 502 in figure 5, the temperature sensor in the Abstract, lines 16-18, the A/D converter in column 7, lines 16-17 and the common substrate in column 25, lines 17-19.

5. Claims 2-3,11-12 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Inose et al (5,969,730).

With respect to Claims 11, 2, '730 teaches the power transistor 502, the shift register 508 and the latch circuits 506-507 in figure 5. With respect to Claims 12, 3, these claims are Markush claims. The claims each recite 3 limitations in the alternative. The Examiner need only find one of the limitations to anticipate the claims. It is noted that '730 teaches the temperature condition in the Abstract, lines 16-18.

6. Claim 8-9 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Silverbrook (5,781,205).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 4-9,13-19,25-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inose et al (5,969,730).

With respect to Claims 4 and 13, '730 teaches a generic temperature sensor in column 27, lines 9-11. One of only ordinary skill in the art given the teaching of '730 is free to pick and choose any known temperature sensor. The generic language of '730 renders obvious each known kind of temperature sensor. Applicant's decision to use a diode is an obvious outcome of the teaching of '730. Further, it is noted that Claims 4 and 13 recite the desired mode of manufacture. It is noted that these claims are apparatus claims not method or process claims. How one derives the machine is not patentable in an apparatus claim. '730 teaches a plurality of power transistors and electrothermal transducers in figure 5. With respect to Claims 5-6 and 14-15, '205 teaches the non-volatile memory(EEPROM) in the Abstract, lines 11-13. It is noted that the pulses described in the Abstract of '730 are considered to be "ON resistance values" as broadly recited in the claims. With respect to Claims 7 and 16, '730 teaches that values may be stored in a non-volatile memory as noted in the rejection of Claims 5-6 and 14-15. Whether those values are stored at the factory or based on operational statistical data is an obvious matter of design discretion and , thus , not patentable. With respect to Claims 17 and 26, 28-29, note the rejections of Claims 1 and 10 above and that '730 teaches the clock signal in column 5, lines 30-35 and the latch signal (data latch) in figure 10. With respect to the data from the converter, '730 teaches tin the Abstract, lines 17-21 that the temperature signal is received for each nozzle individually. One of only ordinary skill in the art would have realized that the temperature data is being controlled by the

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clock signal based on the teaching of '730. With respect to Claims 18-19, note the rejection of Claims 1-4 above. With respect to Claim 25, '730 teaches the temperature sensing in the Abstract. With respect to Claim 26, note the rejection of Claim 1 above. With respect to Claim 27, it is noted that the printer of '730 is an ink jet printer as described in the Abstract. It is noted that the invention of '730 would not work without an ink supply tank as broadly recited in Claim 27. With respect to Claim 29, note the rejection of Claim 17 above and that since the CPU of '730 only understands 1's and 0's it is apparent that the temperature values are converted to digital data. With respect to Claims 30-31, '730 teaches the nonvolatile memory(EEPROM) in the Abstract. With respect to Claim 32,35, these Claims recite the desired mode of operation only and does not contain a structural feature. It is, also, noted that in an apparatus claim, it is the physical structure of the device that is compared to the prior art. With respect to Claim 33, '730 teaches the ink jet printer in the Abstract. With respect to Claim 34, see the rejection of Claims 1-4 above. With respect to Claims 36-37, note the rejection of Claim 1 above and that an inkjet printer obviously has a ink supply tank to work properly.

9. Claims 38-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jinnai et al (4,542,385).

It is, first, noted that Claims 38-45 use the transitional phrase "comprising". Use of the term "comprising" means that the recited physical structure must be present, but the term does not exclude the prior art from teaching other structures in addition to the structures explicitly recited in the claims. With respect to Claim 38, '385 teaches the shift register 38 in column 4, lines 2-4,

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the frequency divider 12 in column 3, lines 15-17, the temperature detector 94 in column 5, lines 56-58 and the heater (piezoelectric vibrator circuit) in column 4, lines 60-63. The Examiner notes that Claim 38 simply recites a heater. One of ordinary skill in electrical engineering would have realized that a vibrating element produces some heat which is all Claim 38 requires. It is, also, noted that Claim 38 recites the desired mode of operation. It is, additionally, noted that in an apparatus claim, it is the physical structure of the device that is compared to the prior art. With respect to Claim 39-40, '385 teaches the temperature sensor, the reference voltage generator and comparator in column 5, lines 55-67 and the switching circuit in column 6, lines 3-20. With respect to Claim 40, the optimum whole number divider may be determined through obvious routine experimentation. With respect to Claim 41, '385 teaches the latch circuit 42 in column 4, lines 3-4. With respect to Claim 42, '385 teaches the ink jet printer in the Abstract, lines 1-2. With respect to Claim 43, Applicant has made an obvious selection of a known type ink jet printer with its known properties. With respect to Claims 44-45, '385 teaches the printing apparatus(ink jet printer) in the Abstract, lines 1-2. The Examiner notes that an ink jet printer would not work without an ink supply tank and, thus, this feature is obviously not patentable.

Allowable Subject Matter

9. Claims 20-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form **including all of the limitations of the base claim and any intervening claims.**

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Other Pertinent Art


10. Applicant's attention is invited to the US Patent of Silverbrook (5,920,331) and European patent EP 0 720 917 A2 to Courtney which are material to the instant invention.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Nolan whose telephone number is (703) 308-0961. The examiner can normally be reached on Monday through Thursday from 8:00 AM to 6:30 PM.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-5841.

CHN


August 22, 2000


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